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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,098	09/04/2003	Hiroshi Kita	990788D2/HG	9919

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EXAMINER

YAMNITZKY, MARIE ROSE

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/656,098	Applicant(s) KITA ET AL.	
	Examiner Marie R. Yamnitzky	Art Unit 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2005.  
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-13 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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1. This Office action is in response to applicant's amendment filed November 30, 2005, which amends the specification and claims 1, 2, 8 and 13.

Claims 1-13 are pending.

2. Most of the issues raised in the rejection under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, as set forth in the Office action mailed September 01, 2005, are overcome by applicant's amendment filed November 30, 2005. The remaining issue is set forth below.

3. Claims 1-13 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The scope of compounds of formula B1 is also not clear in light of the examples set forth in the specification. Of the examples set forth on pages 42-44, B-11 on page 43 does not meet all of the limitations of formula B1 because this compound comprises only one of Ar<sub>41</sub> and Ar<sub>42</sub> as defined in the claims and earlier in the specification, unless the claim terminology has other than conventional meanings.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1 and 13 stand rejected under 35 U.S.C. 102(b) as being anticipated by Inoue et al. (US 5,635,308) for reasons of record in the Office action mailed September 01, 2005.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. (US 5,635,308) for reasons of record in the Office action mailed September 01, 2005.

8. Claims 2-7 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US 5,717,289) in view of Inoue et al. (US 5,635,308) for reasons of record in the Office action mailed September 01, 2005.

9. Claims 8-12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. (US 5,635,308) in view of JP 10-025472 for reasons of record in the Office action mailed September 01, 2005.

10. Applicant's arguments filed November 30, 2005 have been fully considered but they are not persuasive.

With respect to the rejection under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, applicant states that in compound B-11, the binaphthyl and naphthyl group correspond to Ar<sub>41</sub> and Ar<sub>42</sub>, respectively, and this is a compound of formula B1 wherein adjacent substituents attached to an imidazole ring are condensed with each other to form a benzene ring.

The examiner respectfully disagrees. The binaphthyl group of B-11 corresponds to R<sub>41</sub>. The naphthyl group of B-11 corresponds to one of Ar<sub>41</sub> and Ar<sub>42</sub>. The benzene ring that is fused to the imidazole ring is not within the scope of the claim terminology unless the claim terminology has other than conventional meanings because this benzene ring does not represent a case in which one of Ar<sub>41</sub> and Ar<sub>42</sub> represents an aryl group or an aromatic heterocyclic group. While the claims allow adjacent substituent groups to be condensed with each other to form a ring, condensing to form a ring is not stated as an alternative to the requirement that Ar<sub>41</sub> and Ar<sub>42</sub> are each independently an aryl group or an aromatic heterocyclic group.

With respect to each of the prior art rejections, applicant argues that Inoue's Compound No. VII-21 is not within the scope of a compound of present formula B1. Applicant argues that the 9,9'-bianthracene-10,10'-diyl group of the prior art compound does not meet the limitations of a biaryl group having a bond capable of giving an internal rotational isomerism.

Applicant's arguments are not persuasive because they are contradictory to the original disclosure. The 9,9'-bianthracene-10,10'-diyl group of the prior art compound is explicitly disclosed in the present specification as an example of the "basic skeleton structure of the substituent having a biaryl group which has the axis capable of giving the internal rotation isomerism". See the last paragraph on page 24 and the sixth formula on page 25. While the

biaryl group formed by removing one hydrogen from the compound of the sixth formula on page 25 may be further substituted, it is apparent from the teachings in the last paragraph on page 24 that further substitution is not required.

Also note the compound represented by formula A-16 on page 39 of the specification. The compound of formula A-16 is an example of a material represented by formula A1 as defined on page 7 of the specification, wherein each of  $Ar_{11}$ ,  $Ar_{12}$  and  $Ar_{13}$  is a biaryl group formed by removing one hydrogen from the compound of the sixth formula on page 25, with no further substitution. Note that the material of formula A1 must have at least one biaryl group having a bond capable of giving at least two internal rotational isomerism. Since all biaryl groups of the compound of formula A-16 are 9,9'-bianthracene-10,10'-diyl groups, 9,9'-bianthracene-10,10'-diyl group must meet the limitations of a biaryl group having a bond capable of giving at least two internal rotational isomerism.

Also note that the paragraph bridging pages 23 and 24 teaches “‘a bonding axis capable of giving the internal rotation isomerism’ is a bonding axis which cannot freely rotate for  $360^\circ$  by the steric hindrance... such as the axis bonding the naphthalene nuclei in... 1,1'-binaphthyl.” If the axis bonding the naphthalene nuclei in 1,1'-binaphthyl cannot freely rotate for  $360^\circ$ , it is reasonable to expect that the axis bonding the anthracene nuclei in 9,9'-bianthracene-10,10'-diyl cannot freely rotate for  $360^\circ$  since 9,9'-bianthracene-10,10'-diyl is bulkier than 1,1'-binaphthyl.

The examiner also notes the teachings at column 2, lines 60-66 of US 5,972,247 to Shi et al. Shi et al. teach that 9,10-bis(3'5'-diaryl)phenyl anthracene exhibits atropisomerism. Based

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on Shi's disclosure, it is apparent that it is possible for some molecules to exhibit atropisomerism even though those molecules can, on paper, be drawn as having mirror images that are superimposable.


11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

12. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax number for all official faxes is (571) 273-8300. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY  
January 12, 2006

  
**MARIE YAMNITZKY**  
**PRIMARY EXAMINER**  
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